NASA 700 GROUP SCHEMATIC

DEFINITION:

This Group contains NASA's unique AST Specialties. These are engineering, scientific, and other technical positions engaged in professional aeronautics or aerospace research, development, operations, or related work. These positions require professional qualifications in engineering; mathematics; physical, life, or computer science; or another field of science.

DEFINITION OF NASA 700 GROUP AST (AEROSPACE TECHNOLOGY) POSITIONS

A NASA position is an Aerospace Technology (AST) position and appropriately assigned to the 700 Group if it is engaged in one, or more, of the four "Areas of Work," AND meets at least one, or more, of the three "Working Conditions" identified below.

A. Areas of Work

1. The study of space phenomena, or
2. Work affected by known or unknown conditions in space or simulated space environments, or
3. The science of aeronautics, and/or
4. The application of research findings in space and aeronautics.

B. Working Conditions:

1. Many of these positions are interdisciplinary, bringing into play combinations of academic disciplines which are dictated by the unique problems in the field, or
2. Positions reflecting extensions of the traditional disciplines to meet the space environment or advanced flight regimes, and/or
3. Positions wherein the duties require an understanding of problems peculiar to space and advanced flight regimes.

STRUCTURE OF THE NASA 700 GROUP

The NASA 700 Group is divided into Subgroups that contain the definitions of NASA's unique Specialties (Series/Occupations). Each Subgroup represents a functional area of work found throughout the Agency and is subdivided into Specialties representing that work. Subgroups are:

701	Space Sciences Subgroup
702	Earth Sciences Subgroup
709	Life Sciences and Systems Subgroup
710	Fluid and Flight Mechanics Subgroup
715	Materials and Structures Subgroup
720	Propulsion and Power Subgroup
725	Flight Systems Subgroup
730	Measurement and Instrumentation Subgroup
735	Data Systems and Analysis Subgroup
740	Facilities and Environmental Factors Subgroup
745	Operations Subgroup
770	Management Subgroup

701 SPACE SCIENCES SUBGROUP

DEFINITION: Includes positions engaged in the study of the Earth and planetary atmospheres and ionospheres; field and particles in the interplanetary space environment; the Sun and extra-solar objects and radiation emitted by them; the chemical, physical, and morphologic properties of moons, planetary bodies, and other solid materials in the solar system and of their samples; data obtained from the above investigations and/or the development of instrumentation for these purposes.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
701-05	Atmospheres and Ionospheres	Astrophysicist	GS-1330
701-09	Space Sciences (Entry-level positions at GS-7 and GS-9 Only.)	Space Scientist	GS-1330
701-15	Fields and Particles	Astrophysicist	GS-1330
701-20	Stellar, Galactic, and Extragalactic Astrophysics	Astrophysicist	GS-1330
701-25	Planetary Studies	Space Scientist	GS-1330
701-35	Solar and Solar Terrestrial Studies	Astrophysicist	GS-1330
701-40	Solar Systems Analysis	Physical Scientist	GS-1301
701-90 thru 701-99	*	*	*

*At the Center's discretion.

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702 EARTH SCIENCES SUBGROUP

DEFINITION: Includes positions that are involved in the development of future remote sensing missions and aircraft experiments; defining new or modifying aerospace sensing instrumentation used in obtaining data on the characteristics and phenomena of the Earth and its atmosphere, including the utilization and operational control of such instrumentation; and analysis, interpretation, and application of data obtained through remote sensing in the biological and physical science disciplines.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
702-02	Earth Sciences Remote Sensing	Physical Scientist	GS-1301
702-03	Climate and Radiation Studies	Physical Scientist	GS-1301
702-04	Atmospheric Chemistry and Dynamics	Physical Scientist	GS-1301
702-05	Earth Biosphere Studies	Chemist	GS-1320
702-06	Atmospheric Measurements	Physical Scientist	GS-1301
702-07	Applications Data Management	Physical Scientist	GS-1301
702-08	Science Missions	Physical Scientist	GS-1301
702-09	Earth Sciences (Entry-level positions at GS-7 and GS-9 Only.)	Physical Scientist	GS-1301
702-10	Oceanographic Studies	Oceanographer	GS-1360
702-11	Meteorological Studies	Meteorologist	GS-1340
702-12	Solid Earth Geophysical Studies	Geophysicist	GS-1313
702-90 thru 702-99	*	*	*

*At the Center's discretion

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709 LIFE SCIENCES AND SYSTEMS SUBGROUP

DEFINITION: Includes positions engaged in research, development, and application of human-system integration technology for use in the aerospace environment and in research pertaining to humans and other life forms in the universe. Also includes, their interaction with their natural and space environments; including psycho-physiological attributes of human functioning as part of a human-machine system, countermeasures for problems that result when humans are exposed to the space flight environment, determining requirements for life support and environmental control systems, flight investigations, and experiment payloads; origin and evolution of biological processes, systems, structures, and species; and means for detection of life and life-related molecules beyond Earth.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
709-09	Life Sciences and Systems (Entry-level positions at GS-7 and GS-9 Only.)	Physical Scientist	GS-1301
709-22	Biological Studies	Biological Studies	GS-401
709-31	Chemical and Biological Evolution	Physical Scientist	GS-1301
709-42	Human Performance Studies	Psychologist	GS-180
709-43	Medical Studies	Medical Officer	GS-602
709-44	Life Support Studies	Physical Scientist	GS-1301
709-45	Human/Machine Systems	Human/Machine Systems	GS-801
709-60	Biological/Physical Science Research	Physical Scientist	GS-1301
709-50	Life Sciences Research	Life Sciences Research	GS-401
709-90 thru 709-99	*	*	*

*At the Center's discretion.

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710 FLUID AND FLIGHT MECHANICS SUBGROUP

DEFINITION: Includes positions engaged in research, development, test, and evaluation of fluid and flight mechanics pertaining to aerospace and aeronautical vehicles. Includes investigations of the force and motion mechanics of vehicles in various atmospheric and celestial environments, wind tunnel testing, and computational analysis of aircraft and spacecraft fluid flow phenomena and fight mechanics problems; studies of the aerothermodynamics of vehicles entering planetary atmospheres including dissociation and ionized gas effects; the development of systems to control, navigate, and guide flight vehicles in planetary atmospheres and in space including trajectory analysis; investigations into the effects of structural vibrations and noise on the design and operation of vehicles; studies of space flight vehicle design and mission analyses; and research on the characteristics of electrically conducting fluids under the action of magnetic and electric fields.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
710-02	Aerothermodynamics	Aerospace Engineer	GS-861
710-09	Fluid and Flight Mechanics (Entry-level positions-GS7/9 Only)	Aerospace Engineer	GS-861
710-10	Aerospace Vehicle Design and Mission Analysis	Aerospace Engineer	GS-861
710-15	Navigation, Guidance, and Control Systems	Aerospace Engineer	GS-861
710-30	Fluid Mechanics	Aerospace Engineer	GS-861
710-45	Flight Vehicle Acoustics	Aerospace Engineer	GS-861
710-55	Heat Transfer	Aerospace Engineer	GS-861
710-60	Stability, Control, and Performance	Aerospace Engineer	GS-861
710-65	Flight Vehicle Atmospheric Environments	Aerospace Engineer	GS-861
710-68	Basic Properties of Gases	Physicist	GS-1310
710-70	Flight Vehicle Space Environments	Aerospace Engineer	GS-861
710-90 thru 710-99	*	*	*

*At the Center's discretion. Last Updated: 10-31-01

715 MATERIALS AND STRUCTURES SUBGROUP

DEFINITION: Includes positions engaged in research, developing, designing, manufacturing, fabricating, processing, testing and/or evaluating work on various kinds of metallic and non-metallic materials for use in aerospace and aeronautical vehicles; into the effects of space environments, loads, and stresses on the structures and materials of aerospace and aeronautical vehicles and support systems; and on the problems of tribology (lubrication, friction, and wear) in relation to these systems.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
715-02	Structural Dynamics	Aerospace Engineer	GS-861
715-03	Mechanics of Materials and Structures	Materials Engineer	GS-806
715-09	Materials and Structures (Entry-level positions at GS-7 and GS-9 Only.)	Aerospace Engineer	GS-861
715-15	Structural Materials	Materials Engineer	GS-806
715-17	Aerospace Metallic Materials	Materials Engineer	GS-806
715-20	Basic Properties of Materials	Physicist	GS-1310
715-25	Aerospace Polymeric Materials	Chemical Engineer	GS-893
715-35	Aerospace Ceramic Materials	Ceramic Engineer	GS-892
715-40	Tribology	Materials Engineer	GS-806
715-50	Structural Mechanics	Aerospace Engineer	GS-861
715-55	Flight Structures	Aerospace Engineer	GS-861
715-60	Aerospace Materials	Materials Engineer	GS-806
715-65	Aeroelasticity	Aerospace Engineer	GS-861
715-90 thru 715-99	*	*	*

*At the installation's discretion.

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720 PROPULSION AND POWER SUBGROUP

DEFINITION: Includes positions engaged in research, development, design, test, and evaluation of aircraft and aerospace propulsion systems (such as liquid, solid, electrical, chemical, beamed energy, solar sails, antimatter and nuclear, etc., separately or in combination) and aerospace power generation systems and their component parts and subsystems, including processes and systems for the direct and indirect conversion of energy into power for aerospace and aeronautical application.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
720-02	Electric Propulsion Systems	Electrical Engineer	GS-850
720-03	Electrical Power Systems	Electrical Engineer	GS-850
720-04	Airbreathing Propulsion Systems	Aerospace Engineer	GS-861
720-05	Liquid Propulsion Systems	Aerospace Engineer	GS-861
720-06	Mechanical Components	Mechanical Engineer	GS-830
720-09	Propulsion and Power (Entry-level positions at GS-7 and GS-9 Only.)	Aerospace Engineer	GS-861
720-10	Solid Propulsion Systems	Aerospace Engineer	GS-861
720-19	Aerospace Propulsion Systems	Aerospace Engineer	GS-861
720-25	Direct Energy Conversion	Electrical Engineer	GS-850
720-50	Fuels and Combustion Processes	Chemical Engineer	GS-893
720-60	Propulsion Flow Dynamics	Aerospace Engineer	GS-861
720-70	Pyrotechnic Systems	Aerospace Engineer	GS-861
720-80	Propulsion Systems and Technologies	Aerospace Engineer	GS-861
720-90 thru 720-99	*	*	*

*At the Center's discretion. Last Updated: 10-31-01

725 FLIGHT SYSTEMS SUBGROUP

DEFINITION: Includes positions engaged in safety, reliability, quality assurance, risk management, research, development, design, test, and evaluation of aerospace and aeronautical vehicles and component systems (including stages, propulsion, control and guidance, data management and software, structures, payloads, etc.) or of an aerospace or aeronautical vehicle and the related external systems (e.g., ground support and telemetry).

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
725-04	Reliability and Quality Assurance	Aerospace Engineer	GS-861
725-05	Reliability	Aerospace Engineer	GS-861
725-09	Flight Systems (GS-7/GS-9 Only)	Aerospace Engineer	GS-861
725-10	Flight Systems Test	Aerospace Engineer	GS-861
725-11	Flight Systems Safety	Aerospace Engineer	GS-861
725-12	Aerospace Flight Systems	Aerospace Engineer	GS-861
725-13	Flight Systems Design	Aerospace Engineer	GS-861
725-15	Electronic Systems Failure Analysis	Electronics Engineer	GS-855
725-16	Crew Station Systems	Aerospace Engineer	GS-861
725-17	Environmental Control Systems	Aerospace Engineer	GS-861
725-20	Experimental Manufacturing Techniques	Aerospace Engineer	GS-861
725-22	Quality Assurance	Aerospace Engineer	GS-861
725-30	Electrical Systems	Electrical Engineer	GS-850
725-31	Automation and Robotics Systems	Aerospace Engineer	GS-861
725-40	Safety and Mission Assurance	Aerospace Engineer	GS-861
725-41	Fluid Systems Test	Aerospace Engineer	GS-861
725-42	Flight Systems Engineering	Aerospace Engineer	GS-861

725-90 thru 725-99	*	*	*

*At the Center's discretion. Last Updated: 10-31-01

730 - MEASUREMENT AND INSTRUMENTATION SUBGROUP

DEFINITION: Includes positions engaged in research, development, design, fabrication, test, and evaluation of equipment, systems, or techniques for detecting, referencing, computing, recording, and measuring physical conditions and environment, as well as communication, control, test, calibration, and operations related to space and ground systems.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
730-05	Sensors and Transducers	Electronics Engineer	GS-855
730-09	Measurement and Instrumentation (Entry-level GS-7 and GS-9 Only.)	Electronics Engineer	GS-855
730-10	Electronic Instrumentation Systems	Electronics Engineer	GS-855
730-15	Optical Physics	Physicist	GS-1310
730-16	Electro-optical Sensor Systems	Electronics Engineer	GS-855
730-25	Control Systems	Control Systems	GS-801
730-37	Tracking and Telemetry Systems	Electronics Engineer	GS-855
730-55	Telecommunications	Electronics Engineer	GS-855
730-57	Electronics of Materials	Physicist	GS-1310
730-65	Microwave Physical Electronics	Physicist	GS-1310
730-70	Nanotechnology Systems	Physical Scientist	GS-1301
730-71	Experimental Electrical Equipment and Techniques	Electrical Engineer	GS-850
730-72	Optical Engineering	Electronics Engineer	GS-855
730-90 thru 730-99	*	*	*

*At the Center's discretion.

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735 DATA SYSTEMS AND ANALYSIS SUBGROUP

DEFINITION: This includes positions engaged in research, development, design, test, analysis, and evaluation of data handling and computing equipment for aerospace and aeronautical purposes (hardware) and the research and development of systems for reducing and computing data (software), or simulating aerospace and/or flight conditions by use of mathematical models, automation, and robotics. This subgroup also includes information technology work that is directly linked to aerospace flight and/or ground data systems.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
735-02	Data Systems	Computer Engineer	GS-854
735-03	Software Systems	Computer Engineer	GS-854
735-05	Data Analysis	Computer Scientist	GS-1550
735-06	Data Systems Analysis	Computer Engineer	GS-854
735-07	Flight Data Systems	Computer Engineer	GS-854
735-08	Ground Data Systems	Computer Engineer	GS-854
735-09	Data Systems and Analysis (GS-7 and GS-9 - Only)	Computer Engineer	GS-854
735-10	Theoretical Simulation Techniques	Aerospace Engineer	GS-861
735-13	Data Hardware Systems	Electronics Engineer	GS-855
735-16	Computer Research and Development	Computer Scientist	GS-1550
735-17	Avionic Systems	Electronics Engineer	GS-855
735-20	Aerospace Information Technology	Computer Engineer	GS-854
735-25	Engineering Optimization	Mathematician	GS-1520
735-90 thru 735-99	*	*	*

*At the Center's discretion.

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740 FACILITIES AND ENVIRONMENTAL FACTORS SUBGROUP

DEFINITION: Includes positions engaged in research, development, design, test, evaluation, and construction of facilities, systems, equipment, controls, and support facilities for use in aerospace and aeronautical research, development, testing and operational activities. Also included are positions involved in planning, developing, coordinating and directing operations for assessing the impact of aerospace and aeronautical operations on the environment.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
740-02	Experimental Facilities Development	Experimental Facilities Development	GS-801
740-03	Facility Systems Safety	Facility Systems Safety	GS-801
740-09	Facilities and Environmental Factors (Entry-level positions at GS-7 and GS-9 Only.)	Facilities and Environmental Factors	GS-801
740-10	Mechanical Experimental Equipment	Mechanical Engineer	GS-830
740-15	Gas and Fluid Systems	Gas and Fluid Systems	GS-801
740-20	Electrical Experimental Equipment	Electrical Engineer	GS-850
740-25	Experimental Facilities Techniques	Experimental Facilities Techniques	GS-801
740-30	Aerospace Environmental Control Techniques	Aerospace Environmental Control Techniques	GS-801
740-35	Aerospace Experimental Facilities and Test Technologies	Aerospace Experimental Facilities and Test Technologies	GS-801
740-90 thru 740-99	*	*	*

745 OPERATIONS SUBGROUP

DEFINITION: Includes positions responsible for developing and analyzing operational concepts and planning space flight operations; management and integration of the operations activities required to support space flight missions; and positions that develop and validate flight procedures and activity plans, establish requirements for and conduct training of space flight crews. Also covered are members of space flight crews, pilots of research and development aircraft, and robotic operations.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
745-02	Flight Training	Flight Training	GS-801
745-03	Flight Systems Operations	Flight Systems Operations	GS-801
745-04	Mission Support Requirements and Development	Mission Support Requirements and Development	GS-801
745-05	Mission Operations Integration	Mission Operations Integration	GS-801
745-06	Management Astronaut	Management Astronaut Physical Scientist	GS-801* GS-1301*
745-07	Mission Specialist Astronaut	*	*
745-08	Pilot Astronaut	Aerospace Engineer and Pilot	GS-861
745-09	Operations (GS-7/GS-9 Only)	Operations	GS-801
745-10	Research Pilot	Aerospace Engineer and Pilot	GS-861
745-11	Launch and Flight Operations	Launch and Flight Operations	GS-801
745-12	Aircraft Mission Operations	Aircraft Mission Operations	GS-801
745-14	Educator Astronaut	*	*
745-15	AST-Flight Systems Training and Operations	Flight Systems Training and Operations	GS-801
745-20	Payload Processing Operations	Payload Processing Operations	GS-801

745-20	Payload Processing Operations	Payload Processing Operations	GS-801
745-90 thru 745-99	**	**	*

* NOTE: This is an interdisciplinary specialty that includes positions that may be incumbered by either engineers or scientists. The final OPM series and title of a specific position is determined by the qualifications of the person who fills it, and is recorded on the position description.

**At the Center's discretion.

770 MANAGEMENT SUBGROUP

DEFINITION: Includes positions engaged in program development, direction, and coordination of aerospace and aeronautical research, development, design, test, and operations efforts. The work includes determination and evaluation of project/program requirements; overall long- and short-range planning; formulation and implementation of project/program management systems and controls; management of resources; identification and resolution of interface, integration, and technical problems; conduct and/or participation in status reviews; and documenting and reporting the status, results, problems, concerns, etc., and assessment of contractor performance.

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
770-01	Senior Executive	*	*
770-10	Engineering Project Management	Engineering Project Management	GS-801
770-11	Science Project Management	Physical Scientist	GS-1301
770-29	Physical Science Technical Management	Physical Scientist	GS-1301
770-30	Technical Management	Technical Management	GS-801
770-32	Technical Resources Management	Technical Resources Management	GS-801
770-33	Physical Science Technical Resources Management	Physical Scientist	GS-1301
770-34	Technical Engineering Operations Management	Technical Engineering Operations Management	GS-801
770-40	Engineering Technology Utilization and	Engineering Technology Utilization	GS-801

	Commercialization	and Commercialization	
770-41	Science Technology Utilization and Commercialization	Physical Scientist	GS-1301
770-56	Launch Site Support Management	Launch Site Support Management	GS-801

770 MANAGEMENT SUBGROUP (Continued)

NASA Class Code	NASA Specialty Title	OPM Title	OPM Series
770-60	Engineering Program Management	Engineering Program Management	GS-801
770-61	Science Program Management	Physical Scientist	GS-1301
770-77	Logistics Engineering Management	Logistics Engineering Management	GS-801
770-90 thru 770-99	**	**	**

NOTE: Specialties in this subgroup are to be used only when no other specialty appropriately describes the work being performed. Also, the work must clearly influence management considerations with respect to research, development, or operations in the aerospace field, be directly related staff work, and/or provide direct technical support.

* The Agency Executive Personnel Office approves the OPM Title and Series. Positions in this Specialty are restricted to professional series within the OPM engineering and science Groups.

** At the Center's discretion

795-00	Expert
796-00	Consultant
799-00	Graduate Co-op